Terrestrial Animals

Protocol: Caribou

Parks Where Protocol Will Be Implemented: ALAG, ANIA, KATM, LACL

Justification/Issues Being Addressed: Caribou are an integral component of terrestrial systems in ALAG, ANIA, KATM, and LACL. During cycles of high abundance, this species has the potential to influence structure and function of terrestrial systems both through its grazing effects on vegetational communities (Naiman 1988) and through its role as a prey species. Caribou also are an important subsistence and cultural resource to local native Alaskans and provide significant recreational opportunities for resident hunters. Caribou are specifically mentioned as a species of interest in the enabling legislation of LACL. The Northern Alaska Peninsula Caribou Herd (NAPCH) and Mulchatna Caribou Herd (MCH) occur in KATM, NAPCH is present in ANIA, and MCH also occurs in LACL. KATM and LACL have resident animals as well. The MCH was estimated at 18,600 animals in 1981, increased to a peak of over 200,000 animals in 1996, and has declined to an estimated 85,000 animals in 2004. Changes in numbers and distribution of caribou are anticipated in response to climate-induced changes in their habitats.

Caribou herds annually move over extensive areas, sometimes migrating hundreds of kilometers between wintering areas and calving-summering grounds. Movement patterns of caribou can be complicated and unpredictable, subherds periodically intermingle with the main herd, and the location of calving and wintering areas can change annually. National Park Service staff have worked in cooperation with ADF&G to conduct annual caribou surveys (1986-2004). Ongoing caribou monitoring will increase understanding of natural and human-related fluctuations of the herd and provide information that park managers need to respond to management of subsistence and sport hunting.

Specific Monitoring Questions and Objectives to be Addressed by the Protocol:

Question:

- Are abundance, sex-age composition, and distribution of caribou herds changing in ALAG, ANIA, KATM, and LACL?

Objectives:

- Devise and implement a protocol for obtaining past, present, and future survey data of NAPCH and/or MCH in ALAG, ANIA, KATM, and LACL from the multiagency team performing aerial photosurveys and radiotelemetry flights.
- Estimate long-term trends in abundance, calf:cow ratios, extent of occurrence, and area of occupancy of NAPCH and/or MCH in ALAG, ANIA, KATM, and LACL.

Basic Approach: ADF&G, ADNR, BLM, USFWS, and NPS are cooperating to monitor caribou in the NAPCH and/or MCH. Surveys are based on the protocol described in Valkenburg et al. (1985), and the following is summarized from the "Mulchatna Caribou Herd Monitoring Plan" (J. Woolington, ADF&G, unpublished draft). A large number of caribou in these herds have active radio and satellite transmitters; additional animals will be captured and radiocollared as needed, depending on mortality rates and funding availability. Two types of aerial surveys are employed to gather distribution and demographic data: (i) radiotelemetry flights and (ii) reconnaissance flights. Radiotelemetry flights are performed during calving surveys in late May to estimate productivity, are done in conjunction with photosurveys in late June/early July to estimate herd size, and are conducted in early October to record distribution prior to fall composition counts. Directed reconnaissance uses relocations of collared individuals and visual searches for noncollared animals to estimate numbers. These data are supplemented by incidental observations of caribou during the course of other work or surveys. Aerial photos are taken of large postcalving aggregations of caribou during radiotelemetry/photosurvey flights in late June/early July, and these photos are used to enumerate individuals. These various sources of seasonal data are combined to estimate annual patterns of movements and spatial distribution.

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- Bill Thompson, NPS-SWAN (NPS Lead)
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Development Schedule, Budget, and Expected Interim Products: Because this is an existing monitoring program, there will be no costs to SWAN for developing or implementing the sampling protocol.

2006 Draft SOPs ($ to be determined).

2007 Implement and test protocol for harvesting data ($ to be determined).

Literature Cited:

Naiman, R. J. 1988. Animal influences on ecosystem dynamics. BioScience **38:**750-752.

Valkenburg, P., D. A. Anderson, J. L. Davis, and D. J. Reed. 1985. Evaluation of an aerial photocensus technique for caribou based on radiotelemetry. Pages 287-299 *in* T. C. Meredith and A. M. Martell, editors. Proceedings of the Second North American Caribou Workshop, McGill Subarctic Research Paper No. 40, McGill University, Montreal, Quebec, Canada.

Woolington, J. D., and M. G. McDonald. 2003. Caribou management report: Mulchatna herd. Pages 34-52 *in* C. Healy, editor. Caribou management report of survey-inventory activities, 1 July 2000-30 June 2002. Alaska Department of Fish and Game, Juneau, Alaska, USA. Online. (http://www.wildlife.alaska.gov/pubs/techpubs/mgt_rpts/ca03mt-sc-int.pdf). Accessed 26 July 2005.